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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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| In the Matter of | ) | |
| | ) | CC Docket No. 94-1 |
| Price Cap Performance Review | ) | |
| for Local Exchange Carriers | ) | |

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REPLY COMMENTS

The Ad Hoc Telecommunications Users Committee ("Ad Hoc" or the "Committee") hereby replies to comments of other parties filed in response to the Fourth Further Notice of Proposed Rulemaking in this proceeding.[1] The X-Factor NPRM seeks to establish a long-term methodology for determining the "X-Factor" in the Federal Communications Commission's ("FCC" or "Commission") price cap formula for Local Exchange Carriers ("LECs").

Attached to this pleading, and made a part hereof, is a document that was prepared by the Committee's economic consultant, Economics and Technology, Inc. ("ETI"). The ETI submission, "Reply to X-Factor Proposals for the FCC Long-Term LEC Price Cap Plan," ("ETI Reply Report") demonstrates that the LECs' submissions in the comment round suffer from many of the same deficiencies that afflicted their earlier efforts in this docket.[2] When the defects in

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1 *Price Cap Performance Review for Local Exchange Carriers,* CC Docket No. 94-1, FCC 95-406, released Sept. 27, 1995 (Hereinafter the "X-Factor NPRM").

2 The ETI Reply Report responds to the new Total Factor Productivity ("TFP") study that the United States Telephone Association ("USTA") submitted with its comments. This study is referred to as the "Simplified Christensen Study" to distinguish it from the original Christensen Study that USTA filed in a prior phase of this proceeding. Several individual LECs also attached the simplified Christensen Study to their comments. ETI's Reply Report also responds to the analyses of the National Economic Research Associates, Inc. ("NERA"), Dr. Mel Fuss and Dr. Gregory Duncan. These analyses were also submitted on behalf of LEC interests.

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the LECs' submissions are corrected, the X-Factor falls in a range of 8% to 10%.[3]

## I. LEC BEHAVIOR UNDERCUTS USTA'S TFP STUDY.

Before listing the errors in the simplified Christensen Study (which almost all of the LECs support explicitly) and discussing an overarching legal point, Ad Hoc notes that the LECs' own behavior undercuts the credibility of the original and simplified Christensen Studies. The original Christensen Study urged the Commission to adopt an X-Factor of 2.6%; the simplified Christensen Study now argues that the Commission should adopt an X-Factor of 2.8%. Five of the seven RBOCs and Sprint, however, have decided to operate under a 5.3% X-Factor; two of the RBOCs have opted to operate under a 4% X-Factor; and none of the LECs have reported deficient earnings or argued that the Commission-specified X-Factors are causing unhealthy financial results. Rather than accurately reflecting the LECs' historic post-divestiture experience, the Christensen studies grossly misrepresent the LECs' post-divestiture and likely future experience. If adopted by the Commission, the Christensen Study would result in the RBOCs enjoying returns far higher than the upper boundary of the zone of reasonableness.[4]

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3 ETI Reply Report at 3.

4 Ad Hoc is aware that NYNEX argues that with the advent of competition, the LECs' future productivity rate will decline because they will be unable to reduce costs as fast as they lose business. Comments of NYNEX at 5. NYNEX's argument, however, fails on several levels. First, it is not at all clear that the advent of competition will be rapid and widespread. If competition does develop, it may be at a rate slower than NYNEX's ability to reduce costs. Second, when businesses confront competition, they must be able to reduce costs quickly and/or develop new and better products to survive. Third, when under competitive pressure, businesses would normally be more concerned with reducing costs than with advocacy of a regulatory position that would allow the businesses to increase their rates, or keep those rates higher than would be the case under an alternative regulatory approach. If confronting vigorous competition, LECs should not be concerned with keeping an artificially low X-Factor. But

## II. METHODOLOGICAL ERRORS IN THE SIMPLIFIED CHRISTENSEN STUDY.

The specific methodological deficiencies in the simplified Christensen Study are significant, numerous and well documented in the ETI Reply Report:

- Christensen did not use a consistent time period for studying the input price differential issue and TFP; he uses a short-term, post-divestiture input price series in calculating TFP, but a long-term, pre-and post-divestiture input price series in calculating the input price differential. The result of Christensen's use of different time periods to study these different issues is his conclusion that the LEC input price growth matches the economy-wide input price growth. If Christensen were to measure rates of input price growth for the post-divestiture period for the economy as a whole and the LECs, he would have found that the Commission should recognize an input price differential of 3.4% in setting the X-Factor. ETI Reply Report at 11-26.
- Christensen and NERA are wrong in concluding that an economically meaningful measure of TFP growth cannot be calculated for LEC interstate services, as distinguished from LEC company-wide TFP measurements. ETI Reply Report at 6-10.

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perhaps, just perhaps, the LECs expect to retain monopoly power over large segments of their market -- segments of the market to which they could charge higher rates to cross-subsidize pricing that responds to competition. Such a scenario would be unfair to monopoly service consumers and to potential competitors.

- Christensen did not make hedonic adjustments in the measurement of the LECs' capital input. Recognition of changes in *quality* and/or *capacity* are referred to as hedonic adjustments. Failure to make such adjustments has the effect of overstating price levels or understating price decreases. The Bureau of Economic Analysis of the U.S. Department of Commerce and the Bureau of Labor Statistics ("BLS") have recognized the importance of reflecting quality change measurements in price indices.[5] Many types of capital inputs used by LECs, *e.g.*, inputs containing computer chips, digital electronics, fiber optics, and digital switching equipment, changed rapidly. The capacity and cost-effectiveness of such inputs has improved dramatically, compared to economy-wide inputs. Accordingly, Christensen's failure to make hedonic price adjustments overstates LEC price growth and results in an understated X-Factor. ETI Reply Report at 17-18.
- Christensen's simplified study used an economy-wide cost of capital, rather than a LEC cost of capital. LECs, however, face very little competition at present. Whether they will confront competition in the future akin to that in the economy generally is entirely unclear. There simply is no sound basis for concluding that the LECs' cost of capital will follow changes in the U.S. economy cost of capital. Christensen's

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[5] Economics and Technology, Inc., *Establishing the X-Factor for the FCC Long-Term LEC Price Cap Plan,* at 36 (Attachment to Comments of Ad Hoc's, filed Jan. 16, 1996 in this docket) ("ETI Report").

use of the U.S. economy-wide cost of capital as proxy for LEC cost of capital is also at odds with BLS procedures. ETI Reply Report at 27-31.

- Christensen should have used, but did not use, the LEC capital structure or cost of capital in his rental price equation. ETI Reply Report at 31-32.
- Christensen continues to rely on economic depreciation rates, rather than the Commission-prescribed depreciation rates, in his TFP study. Use of economy-wide depreciation rates produces results that are not relevant to the LECs, and thus not relevant to an LEC X-Factor study. ETI Reply Report at 33.
- Finally, Christensen derives the output quantities used in his study by deflating revenues through flawed output price indices, rather than utilizing output values that are based on measurement of physical quantities. ETI Reply Report at 26.

The net effect of these errors is to grossly understate the level of the X-Factor. The differences between the original Christensen Study and the simplified Christensen Study are not significant. Both are riddled with errors, and do not provide a basis for setting LEC interstate access service rates.

In evaluating the dispute between the parties who support the USTA/Christensen Study and those, such as Ad Hoc and AT&T, who find serious errors and bias in the USTA/Christensen Study, the Commission must be guided by the requirements of the Communications Act and the

Administrative Procedures Act. The Commission cannot reasonably adopt the methodology embedded in the Christensen/USTA Study. The study does not pass rudimentary economic muster; it is a study that in every instance errs toward producing an unreasonably low X-Factor that, in turn, would support interstate access service rates that will be excessive.

The numerous and significant deficiencies in the Christensen/USTA Study preclude its use as the basis for annual adjustments to the X-Factor. AT&T is unquestionably correct in urging the Commission to reject USTA's proposal to adopt a moving average X-Factor.[6] Setting and adjusting the X-Factor is not the simple, routine matter suggested by the LECs. The record in this case shows that parties differ over data sources and basic methodological issues. Moreover, the Commission's experience with the TFP studies is less than extensive. To date, the Commission has compromised on important issues, and as a result specified too low an X-Factor. Only when the Commission is certain that it has mastered all the nuances of the TFP methodology should it even consider prescribing a virtually automatic "moving average" adjustment to the X-Factor. Proper specification of the X-Factor is too important to consumers and competition to be prematurely adjusted through procedures that do not allow for vigorous debate and careful review -- even in an era when the Commission's workload is increasing far faster than its resources.

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[6] Comments of AT&T at 33.

## III. LECS CANNOT PROVIDE A LEGAL BASIS FOR A TOTAL COMPANY TFP.

In addition to the compelling economic reasons set forth in the ETI Reply Report, the Commission cannot adopt the Christensen/USTA Study because the Communications Act requires that the Commission set the X-Factor based on interstate results. 47 U.S.C. § 152(b). The Christensen/USTA Study is a "total company" study. Ad Hoc's comments in this proceeding remind the Commission that the Committee has pending before the Commission *a Petition for Expedited Partial Reconsideration of Price Cap Performance Review for Local Exchange Carriers,* First Report and Order, CC Docket No. 94-132, released April 7, 1995, which challenges the legality of the Commission's interim X-Factor for several reasons including the use of total company, rather than interstate only, TFP data. Thus, LECs have long been aware of Ad Hoc's position that the Communications Act and Supreme Court precedent requires an interstate X-Factor. Moreover, the X-Factor NPRM explicitly seeks comment on whether the Commission should adopt an X-Factor that reflects interstate operations only. The LECs, however, have offered no legal defense at all for utilization of a "total company" X-Factor.

Instead of advancing legal arguments to support use of a "total company" X-Factor, the LECs argue that an interstate X-Factor would not be economically meaningful. They assert that jurisdictional considerations "have no economic meaning or basis with regard to input or output components of the production function...."[7] The ETI Report that was attached to Ad Hoc's comments in this proceeding and AT&T's comments herein, however, prove that interstate productivity can be measured and is economically meaningful.[8] Indeed, NYNEX's comments seem to agree with Ad Hoc and AT&T on the desirability of refining TFP results "to reflect the intuited greater degree of interstate productivity."[9] It would be patently unreasonable, given the record in this case, for the Commission to conclude that an interstate X-Factor is not economically meaningful.

Some of the same kind of arguments that the LECs make in this proceeding regarding calculation of an interstate X-Factor have been advanced by economists with respect to the allocation of the cost of plant that is used jointly and commonly to provide interstate and intrastate services. They argue that allocation of LEC costs, that are joint and common to interstate and intrastate services, between the interstate and intrastate jurisdictions is arbitrary and economically unreasonable. But Part 36 of the Commission's Rules, the Supreme Court's decision in *Smith V. Illinois Bell Tel. Co.,* 282 US 133 (1930), and Section 152(b) of the Communications Act require that such costs be allocated between jurisdictions and require that an interstate X-Factor be calculated.[10] Ad Hoc's comments explained, "that methods of regulation have

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7 *See, e.g.,* Comments of USTA at 28-30.

8 ETI Report at 46-47.

9 Comments of NYNEX at 13.

10 Ad Hoc's comments acknowledge that although *Smith* obviously does not specifically address the issue of whether carrier TFP rates must be calculated separately for interstate and intrastate services, the case does establish the need for jurisdictional allocations to avoid unlawful rates. The Commission's price cap formula, which, of course, includes the X-Factor,

changed does not mean that public utility authorities, including the Commission, now can regulate the rates of carriers that provide interstate and intrastate services without making the necessary jurisdictional allocations."[11] The bottom line is that as a legal matter the Commission must establish an interstate X-Factor. If the Commission determines (mistakenly) that it cannot establish a TFP-based, interstate X-Factor, it must use a different methodology to set the X-Factor. The Commission has no choice.

## CONCLUSION

In view of the foregoing, Ad Hoc respectfully requests that the Commission adopt a long-term TFP-based methodology for setting and adjusting the X-Factor in its price cap formula that is consistent with the recommendations and criticisms reflected in the ETI Report attached to the Committee's comments herein and the ETI Reply Report.

Respectfully submitted:

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Users Committee

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serves the same function as the measurement of costs and revenues served in the era of *Smith;* they are used to assure that the carriers' rates are just and reasonable, and to determine the extent to which carriers' may, or must, change their rates. Comments of Ad Hoc at 6.

11 Comments of Ad Hoc at 6-7.

## CERTIFICATE OF SERVICE

I, Meredith Forman, hereby certify that true and correct copies of the foregoing Reply Comments of The Ad Hoc Telecommunications Users Committee were served this 1st day of March 1996, by hand delivery on the following parties:

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# REPLY TO X-FACTOR PROPOSALS FOR THE FCC LONG-TERM LEC PRICE CAP PLAN

Price Cap Performance Review for Local Exchange Carriers

CC Docket 94-1

Lee L. Selwyn
Patricia D. Kravtin

prepared for the

**Ad Hoc Telecommunications Users Committee**

March 1, 1996

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# REPLY TO X-FACTOR PROPOSALS FOR THE FCC LONG-TERM LEC PRICE CAP PLAN

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# Preface | REPLY TO X-FACTOR PROPOSALS FOR THE FCC LONG-TERM LEC PRICE CAP PLAN

In its *Fourth Further Notice of Proposed Rulemaking* (FFNPRM) issued September 27, 1995 in the Commission's Price Cap Review proceeding (CC Docket 94-1), the Commission sought further comment on a broad range of issues relating to the establishment of a long-term price cap plan. The Ad Hoc Telecommunications Users Committee (Ad Hoc Committee) commissioned Economics and Technology, Inc. (ETI) to prepare a report to address the specific issues raised in the FFNPRM, with emphasis on those issues concerning the Christensen/USTA TFP model and its application to the establishment of a permanent X factor. That report, entitled *Establishing the X-Factor for the FCC Long-Term LEC Price Cap Plan* (ETI Report), was submitted as part of the Ad Hoc Committee's initial comments, filed January 16, 1996. In this report, ETI presents its reply to X-Factor proposals submitted by USTA and others in their initial comments, with similar emphasis on those issues concerning the Christensen/USTA TFP model.

The authors are President and Vice President—Senior Economist, respectively, at ETI. They gratefully acknowledge the invaluable advice and assistance contributed by Dr. Ersnt R. Berndt, Professor of Applied Economics at the Alfred P. Sloan School of Management, Massachusetts Institute of Technology, in the preparation of this report. Research and analytical support was provided by Jennifer L. Gray, Sonia N. Jorge, and Irena V. Tunkel of ETI.

Boston, Massachusetts

March 1, 1996

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## REPLY TO X-FACTOR PROPOSALS FOR THE FCC LONG-TERM LEC PRICE CAP PLAN

## Tables

# 1 INTRODUCTION AND SUMMARY

## Purpose of this Report

In our report, *Establishing the X-Factor for the FCC Long-Term LEC Price Cap Plan* submitted earlier in this proceeding in conjunction with the initial comments of the Ad Hoc Telecommunications Committee in response to the Commission's *Fourth Further Notice of Proposed Rulemaking* (FFNPRM), we emphasized the importance of an input price adjustment and further refined the measurement of input price changes to reflect measures of price movements publicly available from disinterested sources as well as hedonic adjustments to the nominal price changes. In addition, that report emphasized the necessity of developing an interstate-only TFP measure, rather than one based upon total company operations. The earlier report also highlighted a number of other methodological deficiencies in the Christensen/USTA study including the failure to recognize the distinction between debt and equity in the application of taxes as part of the rental price formula; the failure to apply depreciation rates that reflect the fundamental economic conditions of capital recovery for the LECs; and the failure to use direct, quantity-based measures of output. Our analysis demonstrated that, when the necessary corrections of the various deficiencies were made to the Christensen/USTA study, the correct X-Factor (including the input price differential and a modest 0.5% Consumer Productivity Dividend) is 9.9% for jurisdictionally interstate services.

In this report, ETI presents its reply to X-Factor proposals submitted by USTA and other parties in their initial comments, with similar emphasis on those issues concerning the Christensen/USTA TFP model. ETI responds in particular to the new Christensen study sponsored by USTA in this proceeding, entitled *Total Factor Productivity Methods for Local Exchange Carrier Price Cap Plans*, provided as Attachment A to USTA's January 16, 1996 comments.[1] This new study is referred to by USTA, and hereafter in this report, as Christensen's "simplified" study. Both Christensen's original study filed May, 1984, and Christensen's 1993 Update Study, filed January, 1995, are hereafter referred to collectively

1. The new Christensen study was also attached to the individual LEC comments filed by NYNEX and US WEST.

as Christensen's "original" study. ETI also responds to the statistical analyses proffered by other economic experts on behalf of USTA and individual LEC clients, including National Economic Research Associates, Inc. (NERA) (for USTA), Dr. Mel Fuss (for Bell Atlantic), and Dr. Gregory Duncan (for GTE), and by Lincoln Telephone.

## Summary

In the FFNPRM, the Commission sets forth three basic criteria that should be satisfied by any X-factor that is ultimately adopted for a long-term price cap plan:

(1) The X-factor must be economically meaningful;

(2) The X-factor should ensure that ongoing gains by the LECs in reducing unit costs are passed through to consumers; and

(3) The calculation of the X-factor should be reasonably simple and be based upon accessible and verifiable data.[2]

As explained in our earlier report, the original Christensen/USTA study was totally deficient with respect to each of these three standards.

USTA has now submitted a new Christensen study that it characterizes as the "simplified" Christensen study. The new "simplified" study does offer an improvement relative to criterion (3) in that it substitutes publicly available data for proprietary LEC data. However, notwithstanding these improvements relating to the use of publicly available data, the new "simplified" Christensen/USTA study remains deficient with respect to the Commission's empirical requirements. In particular, USTA has failed to provide the data and in the form *"necessary to replicate the results submitted in this proceeding"* as required under Paragraph 15, at least within the timeframe of the proceeding. USTA's failure to provide the data necessary to allow replication of *all* results submitted by USTA in this proceeding (as opposed to just the subset of results selected by USTA) seriously limits the nature of the analysis that can be performed by other parties, thereby precluding a full consideration of the many empirical issues raised by the Commission in the FFNRPM.

Moreover, the new "simplified" Christensen/USTA study suffers from many of the same fundamental errors made in the original study which render the study unacceptable from the standpoint of criteria nos. (1) and (2). Specifically, the "simplified" study, as did the original study:

2. FFNPRM, para. 16.

- fails to consider productivity growth applicable for jurisdictionally *interstate* services, instead providing only a total company TFP result;

- uses a short-term post-divestiture input price data series[3] in calculating TFP, but a long-term pre-and post-divestiture input price series for calculating the input price differential, resulting in the erroneous assumption that LEC input price growth is identical to economywide input price growth;

- fails to recognize or make hedonic adjustments in the measurement of the capital input to reflect changes in quality and/or capacity of inputs, resulting in an overstatement of LEC input price growth for the capital input vis-a-vis the US economy as a whole;

- uses a cost of capital that fails to reflect the expected rate of return for the LECs;

- uses a rental price formula that fails to reflect the debt/equity distinction under the US tax code;

- uses depreciation rates that are not applicable to the telecommunications plant used by the LECs and that are based upon a much earlier time period than the post-divestiture time period of Christensen's study; and

- derives output quantities using a deflated revenue approach that relies upon seemingly flawed output price indices, instead of utilizing output measures based upon direct physical quantities.

The combined effect of these errors is a gross understatement of the productivity offset appropriate for LEC interstate telephone services. Christensen's "simplified" study produces an X-factor result of only 2.8%.[4] By comparison, in our earlier report we calculate a corrected X-factor (including input price differential and consumer productivity dividend) for jurisdictionally interstate services of 9.9%.[5] In this report, we overlay corrections of the various deficiencies that have been described above to Christensen's "simplified" study (at least for the 1989 to 1994 time period), and show that, when corrected, the X-factor results for the "simplified" Christensen study are, similar to the original study, in the range of 8% to 9% for jurisdictionally interstate services. Perhaps most telling of all, five of the seven

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3. Indeed, the "simplified" study truncates the study period even further to reflect only five years of post-divestiture data.

4. Christensen "simplified" study, p. 32.

5. ETI Report, *Establishing the X-Factor for the FCC Long-term LEC Price Cap Plan*, p. 55.

RBOCs have voluntarily selected and been operating under a 5.3% X-factor, the highest of the three X-factor levels adopted in the Commission's *First Report and Order*, and an X-factor that is almost double the paltry 2.8% X-factor currently being recommended by USTA.

Because of the serious errors that remain uncorrected in the new "simplified" study, as we discussed in our earlier report, it would be incorrect for the Commission to adopt the moving average approach being recommended by USTA (as opposed to an explicit LEC performance review) as a means of updating a TFP-based X-factor. The complex issues surrounding the calculation of a TFP-based X-factor, as discussed in this report and in the reports of other economic experts, are not likely to be fully resolved in the near term because of data limitations. Accordingly, they do not lend themselves to a mechanical annual updating process such as envisioned under USTA's proposal.

Similarly, because of the difficulties in correctly calculating a TFP-based X-factor, USTA's moving average proposal is not an effective substitute for either the consumer productivity dividend or sharing components of the LEC price cap plan. These components remain essential to protecting consumers against misspecification of the X-factor and ensuring that consumers benefit directly from incentive regulation, and accordingly should be retained. Sharing also can serve the purpose, as it has under the Commission's interim rules, of encouraging LECs to voluntarily select the highest possible X-factor, but the levels of X-factors being offered to the LEC must be significantly increased to levels in the range presented in this report.

# 2 EVALUATION OF CHRISTENSEN/ USTA'S "SIMPLIFIED" METHOD OF CALCULATING TFP

**The new Christensen "simplified" study contains several fundamental errors which, unless corrected, will result in a gross understatement of the productivity offset appropriate for interstate telephone services.**

The new Christensen "simplified" study differs from the original Christensen study primarily in the data used to calculate LEC inputs. In particular, the "simplified" study relies upon publicly available data, whereas the original studies relied upon proprietary, internally-generated LEC data that was neither disclosed nor capable of independent replication. However, in most major respects, the "simplified" study employs fundamentally the same study methodology as the original and, accordingly, suffers from many of the same fundamental errors. These errors include:

- the failure to consider jurisdictionally *interstate* productivity, instead providing only a total company TFP study;

- the use of a short-term post-divestiture input price data series (indeed, one that is truncated relative to the original study) in calculating TFP, but a long-term pre-and post-divestiture input price series for calculating the input price differential, resulting in the erroneous assumption of a zero input price differential;

- the failure to make hedonic adjustments in the measurement of the capital input to reflect changes in quality and/or capacity, resulting in an overstatement of LEC input price growth for the capital input vis-a-vis the US economy as a whole;

- the use of a cost of capital that fails to reflect the expected rate of return for the LECs;

- the use of a rental price formula that fails to reflect the debt/equity distinction under the US tax code;

- the use of depreciation rates that are not applicable to the LECs and are based on a much earlier time period than the post-divestiture time period of Christensen's study; and
- the derivation of output quantities using a deflated revenue approach which relies on seemingly flawed output price indices, instead of output measures based upon direct physical quantities.

## Interstate versus Total Company TFP

USTA and most of the individual LECs argue in their filings that an interstate-only productivity measure is not economically meaningful. According to USTA, "jurisdiction is a political distinction only" and "[a]rbritary regulatory boundary lines have no economic meaning or basis with regard to the input or output components of the production function."[6] In addition, in response to Commission concerns that "reliance on total company TFP data to set price caps for interstate rates would be inappropriate if state commissions continue to regulate within their jurisdiction on the basis of solely intrastate data," USTA argues curtly that "state regulation of rates should not be a determining factor for the federal price cap plan."

## Contrary to claims by USTA and the LECs, an interstate-only TFP measure is economically meaningful.

The position that an interstate productivity measure is not economically meaningful is simply not supported by the evidence in this proceeding. As ETI discussed in our earlier report,[7] it has long been recognized that cost, demand growth, and other pertinent conditions facing LECs may differ as between the interstate and state jurisdictions due to differences in the rate of demand growth for individual services, differences in the input mix for individual services, and the disproportionate presence of highly capital-intensive, switched services in the interstate jurisdiction.

The fact that output growth for interstate services has differed substantially from intrastate services is uncontroverted. Indeed, NYNEX, in its own comments, acknowledges

6. USTA Comments, pp. 28-30.

7. ETI Report, pp. 46-47.

the desirability of refining TFP results "to reflect the intuited greater degree of interstate productivity."[8] As explained by NYNEX:

> However, the interstate market is based on output growth that reflects revenues primarily generated by MOU growth, as compared to intrastate which reflects a significant portion of output growth generated by slower line growth.[9]

Interestingly, NYNEX announces in its comments that it "looks forward to working with the Commission and other parties in this proceeding to develop appropriate, economically based refinements to the TFP results," but does not offer any specific methodological suggestions nor provide any indication of the process by which such a refinement would actually be developed in this proceeding.[10] Ameritech similarly indicates a willingness to consider an adjustment for an interstate output growth factor but fails to put forward any positive recommendation as to how such an adjustment could be made.[11]

Notwithstanding NYNEX and Ameritech's apparent enlightenment on the subject of interstate vs. total company productivity, both LECs tow the party line by endorsing the Christensen study, as NYNEX puts it, as "the best starting point in determining an appropriate Baseline productivity factor."[12] Given NYNEX's explicit recognition of the greater degree of *interstate* productivity, NYNEX's endorsement of the Christensen *total company* TFP result as the appropriate "baseline" productivity factor should be dismissed as illogical.[13] Actual interstate TFP measures reflecting interstate-only output growth have

8. NYNEX Comments, p. 13.

9. *Id.*, p. 20.

10. *Id.*, p. 13. NYNEX's offer to work with the Commission and other parties in this proceeding to develop an "economically based refinement to the TFP result" is a curious one. While NYNEX is certainly able to communicate with the Commission on an *ex parte* basis, that process does not readily lend itself to working with other parties in the proceeding. NYNEX's failure to present a specific proposal for an interstate additive in its initial comments effectively deprives other parties a meaningful opportunity to respond to any subsequently-presented NYNEX proposal.

11. Ameritech Comments, p. 7.

12. NYNEX Comments at 13.

13. Inasmuch as the FFNPRM is directed at developing a *permanent* X-factor, the suggestion that a total company result (per Christensen) can serve as a "baseline" until the "correct" interstate-only TFP methodology can be adopted should be seen, at a minimum, as an admission by NYNEX that an X-factor that is based upon total company productivity growth understates the value that is appropriate for the interstate jurisdiction. It is also a

(continued...)

been calculated in both the ETI and Norsworthy studies and were introduced in the record in this proceeding by Ad Hoc and by AT&T, respectively. There is simply no logical basis for relying upon a total company result as the "baseline," when there are reasonable interstate TFP estimates available.

In the case of the ETI study, the data used to develop an interstate-only output measure is the very data set relied upon by Christensen himself. Specifically, the Christensen/USTA model identifies three distinct categories of interstate activity: interstate switched access, interstate special access, and interstate end user access. The total company output index used by Christensen in the calculation of TFP is comprised of deflated revenues for these three interstate-only service categories in combination with a number of other service categories. However, it is a straightforward process to develop an index of output growth which encompasses only the interstate categories.[14] Thus, the USTA assertion that interstate output cannot be separately measured is belied by its very own data.

In the case of the Norsworthy study, three types of physical units of outputs associated with interstate revenues, i.e., access lines (for end user common line activity), interstate access minutes, and special access lines, are used to measure interstate output directly.[15] As we noted in our earlier report, direct measurement of physical output, such as that utilized in the Norsworthy study, is preferable to Christensen's deflated revenue method.[16] For purposes of our report, however, Christensen's deflated revenue method was used, in part for reasons of data availability, and in part to demonstrate the ability to estimate separate interstate and state output growth rates using the Christensen deflated revenue method.

In any event, the record in this proceeding contains these two distinct methods of calculating an interstate-only output growth measure – the deflated revenue method used by ETI and the direct physical output method used by Norsworthy. Thus, it is abundantly clear that interstate-only output can be (and has been) readily measured. The calculations of interstate-only output presented by Ad Hoc and AT&T fully negate the "can't be done" rhetoric characterizing USTA's position on this issue.

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13. (...continued)
transparent dilatory tactic whose effect, if successful, would be to permit the LECs to capture undeserved revenues while NYNEX and its sister LECs "work[] with the Commission and other parties in this proceeding to develop appropriate, economically based refinements to the TFP results."

14. See ETI Report, p. 55.

15. Statement of Dr. John R. Norsworthy, *Analysis of TFP Methods for Measuring the X-factor of the Local Exchange Carriers' Interstate Access Services*, Appendix A to AT&T Comments, p. 23.

16. See ETI Report, pp. 17-18, 50.